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Dear Professor Winkler:

Your letter of September 5th only just arrived, but that at a propitious time. I am just preparing a revision of a paper intended for publication in Nature Magazine, to celebrate approximately the 40th anniversary of the first publication of genetic crossing in bacteria.

Yes, this has had large existing and potential consequences -- so much of biotechnology today is done precisely in strain E. coli K-12 -- and certainly very few people in 1946 would have thought this would have any practical application whatsoever. However I would not have interrupted my medical studies, in favor of continuing this research, if I had not felt that I could make a more important contribution to human health in bacterial genetic research than could have been possible by a single physician.

Hopefully you will soon see the definitive version of that reminiscence in Nature Magazine: they expect to publish it before the end of the year. Meantime I do send you the one item that I have in print that might be helpful to you.

To your question 2 the Childs Fund* did indeed sponsor my first fellowship. Yes, with Ed Tatum's good offices this was specifically to support my coming to work in his laboratory on bacterial genetics. When I went to the University of Wisconsin in September 1947 my main support was from the Wisconsin Alumni Research Foundation and then a grant from The Rockefeller Foundation (you will recognize the name of Warren Weaver). Within the next year or two the NIH started giving out research grants and that agency was my principal supporter through most of my career.

As you will see from the printed autobiography I began my work on E. coli in Francis Ryan's lab at Columbia in 1945 then consummated those studies in 1946 at Yale. I was not really a Ph.D. student at that time but rather a medical student registered at Columbia University on leave to do research at Yale. Only retrospectively was my work regarded as qualifying as a dissertation for the Ph.D. The main obstacle was finding the funds in order to pay the necessary academic registration fees retroactively! I am sending you a copy of my bibliography and you can see which of these studies were done at Yale and which at UW.

With respect to item 4 I think the enclosures will give you a compact answer.

I am collecting all available documentary material for a more comprehensive scientific autobiography or memoir. There I will go into related matters like the intersection of laboratory research and its applications in biotechnology. Starting already in the late 1940s, I was trying hard to export these ideas of microbial genetics to deal with practical problems like improvement in antibiotic production -- especially by a consulting role at Bristol Laboratories. I found that until the early 1970s the drug companies would listen with interest, and pay my fare; but in fact they did very little to incorporate these ideas into their practice. In 1961 the Syntex Corporation (when it moved from Mexico to Palo Alto) did establish a Syntex Institute for Molecular Biology whose aim was the use of ideas of molecular genetics in ways that are quite familiar to the pharmaceutical industry at the present time. However that was in many respects before its time and the Institute was before long absorbed into the general pharmaceutical research programs at Syntex.

Probably the best overview of the technological history of those innovations is in a paper by Susan Wright, OSIRIS, 2nd series, 2:303-360, 1986.

Yours sincerely,

Joshua Lederberg

Encls. P5, P42, S262, S282
*Childs Fund Solicitation
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